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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/635,636	08/10/2000	Jun Oouchi	Q60126	5835

7590 06/10/2004

Sughrue Mion Zinn MacPeak & Seas
2100 Pennsylvania Avenue NW
Washington, DC 20037

EXAMINER	
PEREZ GUTIERREZ, RAFAEL	
ART UNIT	**PAPER NUMBER**
2686	5

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/635,636	Applicant(s) Oouchi	
	Examiner Rafael Perez-Gutierrez	Art Unit 2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6 and 9* is/are rejected.

7)☒ Claim(s) *5,7 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Action is in response to Applicant's amendment filed on January 30, 2004. **Claims 1-9** are now pending in the present application. **This Action is made FINAL.**

Drawings

2. The substitute drawings received on January 30, 2004 have been approved by the Examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakurai et al. (U.S. Patent # 5,933,097)**, as applied in the first Office Action.

Consider **claim 1**, Sakurai et al. clearly show and disclose a vehicle-mounted device 10 (DSRC car-mounted equipment) (figures 1 and 2) for transmitting and receiving data with a roadside device (on-the-road equipment) comprising:

a reception sensitivity-increasing means (combination of wave detection circuit 2, amplifier/demodulator circuit 3, electric field-strength detecting circuit 5, and control circuit 4) (figure 1) for increasing the reception sensitivity in a communication area with the roadside device (on-the-road equipment) in response to the entrance into a communication start area with the roadside device (on-the-road equipment) (i.e., when the device 10 changes from a low power-consumption mode to a normal power-consumption mode (reception sensitivity at this mode inherently increases) upon detecting entrance into a communication area with the roadside device) (abstract, figures 1 and 2, column 1 lines 28-40, column 3 lines 42-60, and column 4 lines 4-9).

Sakurai et al. further discloses that prior to entering into communication start area, the device 10 is operating under a low power-consumption mode in which the control circuit 4 assumes a sleep state (column 3 line 53 - column 4 line 9) thereby, at least suggesting, that the reception sensitivity-increasing means (combination of wave detection circuit 2, amplifier/demodulator circuit 3, electric field-strength detecting circuit 5, and control circuit 4) (figure 1) returns the reception sensitivity back to the normal reception sensitivity (inherent in the low power-consumption mode) of before entering into the communication start area in

response to the end of communication with the roadside device (on-the-road equipment).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to slightly modify the teachings of Sakurai et al. to specifically return the reception sensitivity back to the normal reception sensitivity (by changing from the normal power-consumption mode to the low power-consumption mode) in response to the end of communication with the roadside device in order to reduce the power consumption of the device 10 and consequently save power and reduce potential interference in the system.

Consider **claim 2**, and **as applied to claim 1 above**, Sakurai et al. further show and disclose that the reception sensitivity-increasing means includes:

a wave detection circuit 2 (electric field intensity detector) (figure 1) for detecting the electric field intensity of a signal received from the roadside device (on-the-road equipment) (column 1 lines 28-40, column 3 lines 43-52, and column 7 lines 39-45);

a comparator circuit 51 (figure 1) that compares the electric field intensity with a predetermined threshold value (judging level) and outputs an activating (electric field intensity judgement) signal when the electric field intensity is not smaller than the threshold value (judging level) (column 3 lines 48-52 and column 5 lines 19-21); and

a control circuit 4 (reception control unit) (figure 1) for variably setting the threshold value (judging level) in response to the activating (electric field intensity judgement) signal (column 5 lines 30-61); and wherein

the control circuit 4 (reception control unit) (figure 1) changes the threshold value (judging level) into a highly sensitive threshold value (judging level) lower than the normal

threshold value (judging level) in response to a standard-field activating signal (first electric field intensity judgement signal) corresponding to the entrance into the communication start area (column 5 line 16 - column 6 line 5, and column 6 lines 60-62), and fetches the reception data received in the communication area data (inherently taught in order to complete the automatic toll collection) (see column 2 lines 36-45).

Consider **claim 3**, and **as applied to claims 1 and 2 above**, Sakurai et al. also show and disclose that the reception sensitivity-increasing means includes:

a reception amplifier 3 (figure 1) for amplifying a signal received from the roadside device (on-the-road equipment) (column 3 line 64 - column 4 line 3); and

a control circuit 4 (reception control unit) (figure 1) for controlling the amplification factor of the reception amplifier 3 in response to the activating (electric field intensity judgement) signal (column 3 line 53 - column 4 line 3) (i.e., amplification factor changes when the circuit 4 switches the device 10 from the low power-consumption mode to the normal power-consumption mode); and wherein

the control circuit 4 (reception control unit) (figure 1) changes the amplification factor of the reception amplifier 3 into an amplification factor larger than the normal amplification factor (i.e., amplification factor changes when the circuit 4 switches the device 10 from the low power-consumption mode to the normal power-consumption mode) in response to the activating (electric field intensity judgement) signal corresponding to the entrance into the communication start area (column 3 line 42 - column 4 line 3), and fetches the reception data received in the communication area data (inherently taught in order to complete the automatic toll collection)

(see column 2 lines 36-45).

Consider **claim 4**, and **as applied to claim 1 above**, Sakurai et al. further show and disclose that the reception sensitivity-increasing means (combination of wave detection circuit 2, amplifier/demodulator circuit 3, electric field-strength detecting circuit 5, and control circuit 4) (figure 1) changes the threshold value (judging level) into a highly sensitive threshold value (judging level) lower than the normal threshold value (judging level) in response to a first or subsequent communication signal received from the roadside device (on-the-road equipment) after entrance into the communication start area (figures 8 and 9 and column 7 line 39 - column 8 line 27).

Consider **claim 9**, and **as applied to claim 1 above**, Sakurai et al. further show and disclose that the vehicle-mounted device 10 (DSRC car-mounted equipment) (figures 1 and 2) comprises:

a control circuit 4 (car-mounted controller) for processing data transmitted and received to and from the roadside device (on-the-road equipment) (column 3 lines 34-36); and

a smart card (not shown) (external storage medium) connected to the control circuit 4 (car-mounted controller) for exchanging data related to toll collection (column 3 lines 39-42); wherein

the control circuit 4 (car-mounted controller) exchanges data related to the toll collection between the roadside device (on-the-road equipment) installed in a toll road and the smart card (not shown) (external storage medium), and automatically executes the toll collection processing based on the data related to toll collection (column 2 lines 17-45, column 3 lines 34-42, and

column 7 line 63 - column 8 line 27).

5. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakurai et al. (U.S. Patent # 5,933,097)** in view of **Inoue (U.S. Patent # 6,337,978 B1)**, both as applied in the first Office Action.

Consider **claim 6**, and **as applied to claim 1 above**, Sakurai et al. clearly show and disclose the claimed invention except a transmission output-increasing means for increasing the transmission output to the roadside device (on-the-road equipment) in the communication area in response to the entrance into the communication start area, wherein the transmission output-increasing means returns the transmission output back to the normal transmission output of before entering into the communication start area in response to the end of communication with the roadside device (on-the-road equipment).

Inoue clearly shows and discloses a DSRC mobile device (figure 1) comprising, among other elements, a transmission output-increasing means (combination of data transmission/reception circuit 2, first power supply circuit 3, RSSI detecting unit 11, communication area detecting means 12, and power supply starting means 5) for increasing the transmission output to a ground device (on-the-road equipment) in a communication area in response to entrance into a communication start area (i.e., by supplying power to the data transmission /reception circuit 2) (abstract and column 5 lines 9-16), wherein the transmission output-increasing means (combination of data transmission/reception circuit 2, first power supply circuit 3, RSSI detecting unit 11, communication area detecting means 12, and power

supply starting means 5) returns the transmission output back to the normal transmission output of before entering into the communication start area in response to the end of communication with the ground device (i.e., by stopping supplying power to the data transmission /reception circuit 2) (column 5 lines 16-18).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the transmission output-increasing means disclosed by Inoue into the device 10 taught by Sakurai et al. in order to save power in the device 10 by transmitting data to the roadside device only when the device 10 is in the communication area of the roadside device.

Allowable Subject Matter

6. **Claims 5, 7, and 8** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims as well as any corrections to the objections made above.

Response to Arguments

7. Applicant's arguments filed January 30, 2004 have been fully considered but they are not persuasive.

In the present application, Applicant argues, on page 11 of the remarks, that in Sakurai et

al. the reception sensitivity remains the same, regardless of the power consumption and that nowhere the reception sensitivity of device 10 is somehow related to power consumption mode of operation.

The Examiner respectfully disagrees with Applicant's argument because Sakurai et al. clearly disclose that during the low-power consumption mode, the control circuit 4 (figure 1) assumes a sleep state without actuating the amplifier/demodulator 3 and during the normal power consumption mode, the control circuit 4 (figure 1) actuates the amplifier/demodulator 3 to begin communication with the roadside device (on-the-road equipment), wherein when entrance into a communication area with the roadside device is detected, the amplifier/demodulator 3 is activated (column 3 line 64 - column 4 line 9). It is, at the very least, implicit from these teachings that during the low power mode (i.e., when the device 10 is not in a communication area with the roadside device) the reception sensitivity is low (because amplifier/demodulator 3 is deactivated) and during the normal power mode (i.e., when the device 10 is in a communication area with the roadside device) the reception sensitivity is higher (because amplifier/demodulator 3 is activated).

Additionally, Applicant argues, also on pages 11 and 12 of the remarks, that Sakurai et al. also describes threshold value adjusting devices, which the Examiner cites to further support his rejections.

The Examiner respectfully disagrees with Applicant's argument because nowhere in the rejection of claim 1, the Examiner has relied upon the threshold value adjusting devices (i.e., device 20) described by Sakurai et al.. Furthermore, claim 1 of the present application is broad

enough that even if the Examiner relied upon, for example, the threshold value adjusting device 20 described by Sakurai et al., Sakurai et al. will still meet claim 1.

In conclusion, and in view of the above reasons and having addressed each of Applicant's arguments, the previous rejection is maintained and made FINAL by the Examiner.

Conclusion

8. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any response to this Office Action should be **faxed to** (703) 872-9306 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Crystal Park II
2021 Crystal Drive
Arlington, VA 22202
Sixth Floor (Receptionist)

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rafael Perez-Gutierrez whose telephone number is (703) 308-8996. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marsha D. Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700 or call customer service at (703) 306-0377.

Rafael Perez-Gutierrez

R.P.G./rpg

RAFAEL PEREZ-GUTIERREZ
PATENT EXAMINER

June 1, 2004

CHARLES APPIAH
PRIMARY EXAMINER